ORIGINAL

BEFORE THE

Federal Communications Commission

WASHINGTON, D.C.

In the Matter of	)	
	)	
Amendment of Section 2.106 of	)	ET Docket No. 92-28
the Commission's Rules to	)	RM-7771 PP-29 PP-32
Allocate the 1610-1626.5 MHz	)	RM-7773 PP-30 PP-33
and the 2483.5-2500 MHz Bands	)	RM-7805 PP-31
for Use by the Mobile-Satellite	)	RM-7806
Service, Including Non-	)	
Geostationary Satellites	)	

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Dated: December 4, 1992

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SUMMARY

AMSC supports the Commission's proposal to allocate additional spectrum to MSS, as initially requested by AMSC. AMSC urges the Commission to ensure that at least a portion of these new MSS bands is available for the U.S. MSS system.

The public interest would be served best by ensuring the availability of sufficient spectrum for full development of AMSC's already-authorized system. The international coordination process has reduced the spectrum available to AMSC. The 1616.5-1626.5 MHz band is uniquely suited to providing more spectrum because it is near AMSC's currently-assigned frequencies and can be added to AMSC's system at low cost. Because it is a regional system, AMSC can use this spectrum without causing harmful interference to existing users.

As AMSC has demonstrated before, the need to protect the numerous existing and planned users of the 1610-1626.5/2483.5-2500 MHz bands places serious constraints on the availability of spectrum in these bands for the proposed non-geostationary MSS systems. Operation using CDMA appears to severely reduce system capacity and bidirectional operation in the 1610-1626.5 MHz band would make these limitations even worse. In addition, these Comments demonstrate that the international PFD thresholds governing the 2483.5-2500 MHz band impose a serious constraint on the proposed non-geostationary MSS systems. AMSC also believes that the handheld units associated with the proposed non-geostationary systems present a potential RF radiation hazard. The proposed non-geostationary MSS systems require

a larger portion of spectrum than likely can be made available in the bands at issue, and are better accommodated in alternative bands such as the large worldwide MSS allocation at 1980-2010/2170-2200 MHz.

Should the Commission nonetheless determine that a policy of licensing multiple MSS systems in the 1610-1626.5/2483.5-2500 MHz bands would serve the public interest, AMSC is willing to work with other parties and continue exploring ways by which the proposed MSS systems might share the available spectrum in the new bands. The Technical Appendix to these Comments demonstrates that whatever sharing can occur is not hindered by the fact that one of the systems is geostationary and the others are non-geostationary.

AMSC also urges the Commission to reconsider its tentative decision concerning the use of the 1515-1525 MHz band as an MSS downlink. The record demonstrates that this spectrum is uniquely valuable for MSS and that AMSC can share the spectrum with aeronautical telemetry users.

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COMMENTS OF AMSC SUBSIDIARY CORPORATION

AMSC Subsidiary Corporation ("AMSC"), by its attorneys, hereby submits its Comments on the Notice of Proposed Rule Making and Tentative Decision in the above-referenced proceeding, 7 FCC Rcd 6414 (1992) ("Notice"). AMSC supports the proposed domestic allocation of the 1610-1626.5/2483.5-2500 MHz bands to the Mobile Satellite Service ("MSS").[1/] These frequencies are of great value to AMSC in fully developing its geostationary MSS system. While AMSC has proposed to use all of the new MSS spectrum that can be used without interfering with other existing and planned systems such as the Glonass radionavigation system, AMSC is willing to explore means of sharing the usable spectrum with the other proposed MSS systems. As discussed in more detail in the attached Technical Appendix, the fact that AMSC proposes

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1/ AMSC also supports the decision in the Notice to deny the Pioneer's Preference requests filed by the five pending applicants for non-geostationary MSS systems in the 1610-1626.5 MHz/2483.5-2500 MHz bands.

to operate geostationary satellites and the others propose to operate non-geostationary systems does not preclude sharing of the spectrum.

Background

AMSC is the licensee of the U.S. MSS system, presently authorized to operate in the 1545-1559 MHz and 1646.5-1660.5 MHz bands.[2/] AMSC has made great progress toward implementing its system, which will provide high-quality mobile voice, data, and position location services to users in North America. AMSC has committed some $346 million dollars toward ground segment and launch.

In this and other proceedings before the Commission, AMSC has discussed the severe international shortage of MSS spectrum that has constrained the development of MSS domestically. More than thirty different MSS systems worldwide operate or plan to operate in the 28 MHz of spectrum presently assigned to AMSC. Two different operators, Inmarsat and the Russian Federation, already use the bands for global beam systems that cannot share frequencies with a U.S. MSS system, and these operators plan to expand their spectrum usage with more powerful

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2/ See Memorandum Opinion, Order and Authorization, Gen. Docket No. 84-1234, 4 FCC Rcd 6041 (1989), vacated in part sub nom. Aeronautical Radio, Inc. v. FCC, 928 F.2d 428 (D.C. Cir. 1991). See also Tentative Decision, Gen. Docket No. 84-1234, 6 FCC Rcd 4900 (1991); Final Decision on Remand, Gen. Docket No. 84-1234, 7 FCC Rcd 266 (1992), appeal pending sub nom. Aeronautical Radio, Inc. v. FCC, No. 92-1046 (D.C. Cir., oral argument held November 25, 1992).

replacement satellites. In addition, Mexico and Canada plan to operate MSS systems in the bands assigned to AMSC, further reducing the amount of spectrum available to the U.S. MSS system. AMSC's experience in the international coordination process indicates that sufficient spectrum presently cannot be coordinated to permit full development of its system.[3/]

On June 3, 1991, AMSC filed an application and accompanying petition for rulemaking requesting that the Commission reallocate the 1616.5-1626.5 MHz band from the Radiodetermination-Satellite Service ("RDSS") to MSS and assign these frequencies to AMSC so they could be integrated into the U.S. MSS system. AMSC pointed out that RDSS was no longer a viable undertaking in light of the demise of Geostar Positioning Corp., the sole would-be provider of RDSS service, and showed that because of the chronic shortage of MSS spectrum, the RDSS spectrum would be better utilized for the full development of domestic MSS.

AMSC also demonstrated that the 1616.5-1626.5 MHz band is uniquely suited for integration into AMSC's system, as these frequencies are proximate to AMSC's presently assigned frequencies and can be added to AMSC's system, along with suitable downlink frequencies, at a cost of between $1 million and $10 million per satellite. Addition of these

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3/ See, e.g., Comments of AMSC, Gen. Docket No. 90-314, ET Docket No. 92-100 (November 9, 1992); Comments of AMSC, NTIA Docket No. 920532-2132 (November 6, 1992); Comments of AMSC, ET Docket No. 92-9 (June 8, 1992); Petition of AMSC, RM-7806 (June 3, 1991); Comments of AMSC, Gen. Docket No. 89-554 (December 3, 1990).

frequencies will permit AMSC to add several thousand channels to the U.S. MSS system.[4/]

Five other entities -- Constellation Communications, Inc. ("Constellation"), Ellipsat Corporation ("Ellipsat"), Loral Qualcomm Satellite Services, Inc. ("Loral"), Motorola Satellite Communications, Inc. ("MSCI"), and TRW Inc. ("TRW") -- also submitted applications to operate satellite systems in all, or portions of, the 1610-1626.5/2483.5-2500 MHz bands, using constellations of satellites in non-geostationary orbit.[5/] The applicants' estimated costs of the proposed non-geostationary MSS systems range from $230 million to over $3 billion. Each of these applicants claimed that their systems were RDSS systems, and attacked AMSC for not proposing to provide "true" RDSS service. As both the Commission and the 1992 World Administrative Radio

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4/ AMSC requested the allocation and assignment of 10 MHz of matching downlink MSS spectrum, and stated that the 1515-1525 MHz band would be the most effective. Alternatively, AMSC proposed as a matching downlink a ten megahertz segment of either the 1850-1990 MHz band, the 2110-2130 MHz band, or the 2160-2180 MHz band.

5/ Another entity, Celsat, Inc., filed a petition for rulemaking asking that the 1610-1626.5 MHz and 2483.5-2500 MHz bands be allocated for a hybrid geostationary satellite and terrestrial communications service. Celsat has not filed an application detailing its proposal. The Commission dismissed Celsat's petition to use the 1610-1626.5 MHz and 2483.5-2500 MHz band for its service, as Celsat's system is inconsistent with the international allocations for the bands. Notice, n.15. The Commission stated that it would separately consider Celsat's proposal in connection with other frequency bands. Celsat has filed a petition for reconsideration of the Commission's dismissal of Celsat's 1610-1626.5/2483.5-2500 MHz band rulemaking petition. See Celsat Petition for Reconsideration (October 5, 1992).

Conference ("WARC-92") recognized, however, the non-geostationary applicants actually propose to provide MSS.

Four of the non-geostationary applicants -- Constellation, Ellipsat, Loral, and TRW -- advocate a policy of multiple entry for MSS systems in the 1610-1626.5/2483.5-2500 MHz bands. Constellation, Ellipsat, Loral and TRW propose to use frequency division multiple access ("FDMA") and code division multiple access ("CDMA") spread spectrum modulation techniques, and assert that by using these techniques they can operate simultaneously using all of the proposed new spectrum.

MSCI proposes to use FDMA and time division multiple access ("TDMA") for its proposed system. MSCI requests that the 1616-1626.5 MHz band be assigned for MSCI's exclusive use, and MSCI proposes to operate both its uplinks and downlinks in this band.[6/] MSCI has proposed that spectrum in alternative bands, such as the 1675-1710 MHz and 1599.5-1610 MHz bands, be allocated to MSS and assigned for use by the other proposed non-geostationary systems.[7/]

By its Notice, the Commission proposes to allocate the 1610-1626.5 MHz and 2483.5-2500 MHz bands for both geostationary and non-geostationary MSS. The Notice notes the "important economic and service innovations that could be provided by both geostationary and non-geostationary MSS

6/ Loral's alternative "System A" also would operate its downlinks in the uplink band.

7/ See MSCI's Petition for Expedited Action, File Nos. 9-DSS-P-91(87) et al. (June 9, 1992).

systems" in these bands. The Commission tentatively rejected AMSC's proposal to allocate the 1515-1525 MHz band as an MSS downlink.

The Notice points out that the proposed new MSS allocations may not be sufficient to accommodate all of the proposed systems. At the same time, the Notice tentatively concludes that "the public interest is best served by multiple MSS LEO operators," and solicits comment on the ability of various access methods to permit sharing of the spectrum by multiple systems.[8/] The Notice states that "it may not be feasible for geostationary and non-geostationary systems to share the same frequencies," and requests comment on the feasibility of sharing between geostationary and non-geostationary systems. The Notice also seeks comment on its requiring MSS systems in the 2483.5-2500 MHz band to comply with international power flux density ("PFD") limits, on the feasibility of bidirectional operation in the 1610-1626.5 MHz band, and on potential RF exposure concerns presented by the proposed systems.

8/ The Commission proposes to address MSS service rules and licensing at a later stage, and has proposed the establishment of a Negotiated Rulemaking Committee to discuss pertinent issues and formulate proposed service rules. See Public Notice, CC Docket No. 92-166, DA 92-1085 (August 7, 1992). AMSC will participate on such a Committee and work with the other participants toward investigating the possibility of a technical solution by which all the proposed systems can share the new MSS bands. See Comments of AMSC and Statement of Intention to Participate, CC Docket No. 92-166 (September 14, 1992).

Discussion

AMSC supports the proposed allocation of the 1610-1626.5 MHz and 2483.5-2500 MHz bands domestically to MSS. As the Notice recognizes, history has shown that RDSS service is not a viable undertaking. The allocation of these bands domestically to MSS is consistent with the international allocations adopted at WARC-92, and will aid in relieving the severe shortage of spectrum for MSS in the United States.

Given the great difficulties in coordinating sufficient spectrum for the full development of AMSC's MSS system, it is imperative that AMSC be afforded access to the maximum possible amount of spectrum in the new MSS bands proposed in this proceeding. As shown below, AMSC continues to question whether these bands will yield sufficient spectrum to viably support any one or all of the proposed non-geostationary MSS systems. AMSC therefore believes that the public interest is served best by assigning the available frequencies in the 1616.5-1626.5 MHz band to AMSC, together with a matching 10 MHz of downlink spectrum, and by accommodating the proposed non-geostationary systems in alternative bands. Even if AMSC is not given access to the full 10 MHz of uplink spectrum it requests, however, AMSC seeks and can use whatever spectrum is available in the proposed new MSS bands.

Moreover, should the Commission determine that multiple systems should be authorized in the new MSS bands, AMSC is

willing to work with the non-geostationary system applicants toward exploring ways in which all the proposed MSS applicants can share the bands. If necessary, AMSC is willing and technically able to use spread spectrum techniques to facilitate sharing with the proposed non-geostationary systems in the 1610-1626.5 MHz and 2483.5-2500 MHz bands in conformance with pertinent regulations.

I. The Availability of Spectrum in the 1610-1626.5/ 2483.5-2500 MHz Bands Is of Vital Importance to AMSC's System

AMSC urges the Commission not to ignore the spectrum needs of the very real and beneficial MSS system that AMSC is developing. AMSC is well on its way to bringing the benefits of MSS to the public. Construction of AMSC's first satellite is underway. AMSC already has contracted for the launch of that satellite in 1994, and for the development of the system's ground segment. Through its interim service (using satellite capacity leased from Inmarsat and AMSC's own network operations center), AMSC already is providing data service that is being used by the trucking industry, railroads and pipeline companies for mobile communications and monitoring of critical cargo. AMSC's second and third satellites are designed to provide its system with additional capacity to meet user demand.

The frequencies in the 1610-1626.5 MHz band are of unique value to AMSC. Since this band is proximate to

AMSC's currently assigned frequencies, AMSC can add all or portions of this band to its system at nominal cost.

The Notice suggests that the Commission somehow perceives the proposed non-geostationary MSS systems as offering services or cost economies that AMSC's system cannot offer. There is no basis for such a notion. AMSC's system will provide all the beneficial services proposed by the non-geostationary MSS applicants. AMSC's system will provide high-quality mobile voice and data communications service and position location service in areas unserved by terrestrial facilities. AMSC's network architecture is designed to allow seamless roaming between AMSC's system and terrestrial cellular networks, allowing its customers to call anywhere in the world from their mobile phone. The proposed non-geostationary systems will be extremely costly, and, as shown below, will have very little capacity. Thus, the cost of AMSC's service will be much more affordable than that proposed by the non-geostationary systems. AMSC's first generation of satellites will provide service to vehicular and transportable mobile terminals, meeting the immediate demand for MSS by industry and health and safety users. AMSC's second generation of satellites will offer service to handheld terminals.

AMSC is not opposed to competition. AMSC expects to face extensive competition from numerous satellite and terrestrial-based entities in all its markets. AMSC's land-mobile satellite service will face competition with increasing numbers of terrestrial providers, including rural

cellular, cellular "unserved-area" systems, and Specialized Mobile Radio operators. In the position location, aeronautical and maritime markets, AMSC will compete with such providers as Qualcomm, "little LEO" satellite systems, GTE Airfone and other air-to-ground licensees, and in portions of the maritime and aeronautical markets, Comsat, IDB Communications and other lessors of Inmarsat space segment.

Similarly, AMSC is not opposed to competition from the proposed non-geostationary MSS systems. Given the substantial competition that the U.S. MSS system will face from non-MSS providers, however, the Commission would best serve the interest of competition by first ensuring the availability of sufficient spectrum for the full development of the already-authorized U.S. MSS system. This objective should be accomplished before the Commission considers allocating spectrum for non-geostationary MSS systems that ultimately will operate globally (as contrasted with AMSC's system, which will serve North America specifically), that are extremely speculative and expensive, and that are unlikely to be able to operate viably in the very limited amount of spectrum that realistically car be considered available in the MSS bands at issue here. Alternative bands allocated to MSS at WARC-92 are available to accommodate the proposed non-geostationary systems.[9/]

9/ For example, the new MSS allocations in the 1850-2200 MHz band offer very reasonable opportunities for the development of new MSS systems. The 1980-2010/2170-

(continued...)

II. The Commission Has Overestimated the Potential of the 1610-1626.5/2483.5-2500 MHz Bands to Accommodate Multiple Non-Geostationary MSS Systems

A. The Need to Protect Other Users of the 1610-1626.5/2483.5-2500 MHz Bands Places Severe Constraints on the Use of Those Bands by the Proposed Non-Geostationary MSS Systems

In the apparent belief that the 1610-1626.5 MHz and 2483.5-2500 MHz bands will yield sufficient spectrum to viably support all of the proposed non-geostationary systems, the Notice tentatively concludes that "the public interest is best served by multiple MSS LEO operators." In prior pleadings addressing the non-geostationary system applications, however, AMSC has shown that the availability of spectrum for MSS in these bands is seriously constricted by the need to prevent interference to existing and planned users.[10/] AMSC continues to question whether the bands at issue in this proceeding will yield sufficient spectrum for one or more non-geostationary MSS systems.

9/(...continued)
2200 MHz band is particularly attractive for the non-geostationary systems, since it provides a large, worldwide allocation. This band may not be accessible worldwide until the year 2005 and in the U.S. until 1996, but the U.S. has objected to such limitations and has reserved the right to permit MSS use of the band at any time. In any event, additional time is likely to be necessary for technical design changes, to sort out the technical claims of the non-geostationary MSS applicants and to permit the financing and construction of any actual systems.

10/ See Petition to Deny of AMSC, File Nos. 17-DSS-P-91(48) et al. (December 18, 1991), at 7-11; Consolidated Reply of AMSC, 17-DSS-P-91(48) et al. (March 27, 1992), at 8-11.

The primary constraints on MSS in the 1610-1626.5 MHz band are Radio Astronomy Service ("RAS") facilities and the rapidly-developing Glonass aeronautical radionavigation system. RAS facilities presently operate in the 1610.6-1613.8 MHz band throughout the world and at several locations in the United States. WARC-92 elevated RAS to primary status in this band and mandated that it be protected from interference by other services. See Final Acts of the 1992 WARC, RR 733E.

At WARC-92, the Russian Federation was an outspoken advocate for continued protection of Glonass operations in the 1610-1626.5 MHz band. WARC-92 agreed to continue protection of the radionavigation service and adopted a specific coordination process, Resolution 46 (originally Resolution COM5/8), that gives all countries that consider themselves potentially adversely affected by a proposed MSS system the ability to protect Glonass within their borders and in international waters. The Glonass-M system, which has been Advance Published with the International Frequency Registration Board, extends Glonass operations up through 1621.1 MHz. In this proceeding, a number of domestic aeronautical radionavigation interests objected to the proposed non-geostationary MSS systems because of those systems' potential to interfere with Glonass.[11/]

11/ See Comments of 3S Navigation, File Nos. 17-DSS-P-91(48) et al. (January 31, 1992); Comments of Litton Systems, Inc., Aero Products Division, File Nos. 17-DSS-P-91(48) et al. (January 31, 1992); Reply of Aeronautical Radio, Inc., File Nos. 15/16-DSS-MP-91 (January 31, 1992).

The non-geostationary applicants have yet to show how their systems will avoid interfering with RAS facilities, short of avoiding operating in or near the 1610.6-1613.8 MHz band altogether.[12/] Moreover, while the non-geostationary system applicants claim that their systems will operate within EIRP levels adopted at WARC-92 to trigger special coordination (see RR 731X), Resolution 46 still requires these applicants to coordinate the operation of their MSS systems with countries interested in protecting Glonass, and it is unlikely that the applicants will be able to do so. This is because, as shown in the attached Technical Appendix, a non-geostationary MSS terminal operating at even a relatively low EIRP would cause interference to a Glonass-equipped aircraft within as much as a nearly 70,000 square mile area around the MSS terminal.

Moreover, the 1610-1626.5 MHz band is also allocated to the fixed service on either a primary or secondary basis in many countries. At WARC-92, four additional countries joined the list of nations to which the fixed service is allocated on a primary basis. That list now numbers twenty, and includes Germany, Spain, France, Poland, and the former Soviet Union. See RR 730. The proposed non-geostationary MSS systems would create a level of interference to fixed service operations requiring coordination with these countries.

12/ See Consolidated Reply of AMSC, File Nos. 17-DSS-P-91(48) et al. (March 27, 1992), Technical Appendix, at 4-9.

The constraints are equally severe in the 2483.5-2500 MHz downlink band. This band is used by numerous terrestrial fixed systems throughout the world, particularly in Europe, Asia and Africa. As a result, international regulations impose PFD limits on MSS operations in the 2483.5-2500 MHz band. WARC-92 adopted the Resolution 46 coordination process for MSS systems in these bands. The WARC also relaxed somewhat the threshold PFD requiring coordination. The Commission, however, has proposed treating the international PFD threshold as an absolute limit for domestic MSS systems. Even if this threshold is not treated as an absolute limit but as a coordination "trigger," successful coordination of the non-geostationary systems' operation in the 2483.5-2500 MHz band is unlikely in many areas of the world, given the widespread use of this band in many countries and the fact that, as explained in greater detail below, the PFD levels were designed for geostationary satellite systems, which carry far less interference potential than non-geostationary systems.

Similarly, MSCI's proposal (and Loral's alternative proposal) to operate bidirectionally in the new MSS uplink band is extremely problematic with respect to interference and is highly preclusive to other systems proposing to operate in the new MSS bands. AMSC has shown previously that MSCI's proposed operation of downlinks in the 1613.8-1626.5 MHz band will exacerbate interference to RAS, aeronautical radionavigation, and fixed service facilities. The attached Technical Appendix discusses this fact in

further detail, and notes that the problem is even greater given the higher downlink power levels proposed in a recent amendment to MSCI's application. Moreover, it is virtually undisputed that MSCI's proposed system cannot share the uplink band with CDMA systems. This is indicated by the other non-geostationary system applicants' uniform opposition to MSCI's proposal,[13/] as well as by MSCI's petition to allocate alternative spectrum to accommodate the CDMA non-geostationary systems.

B. CDMA Is Not a Panacea for Multiple Entry of Non-Geostationary MSS Systems in the Proposed New MSS Bands

Despite the severe constraints on the use of the bands by the need to protect other services, Constellation, Ellipsat, Loral and TRW propose to facilitate multiple entry in the 1610-1626.5/2483.5-2500 MHz bands through the use of spread spectrum CDMA. AMSC, however, has shown previously that using CDMA, each of the four spread spectrum non-geostationary systems would have very little capacity when the measures needed to prevent interference to other users of the band are taken into account.[14/] The attached

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13/ See Reply Comments of Constellation, File Nos. 17-DSS-P-91(48) et al. (March 27, 1992), at 18-25; Response of Ellipsat, File Nos. 15/16-DSS-MP-91 (March 27, 1992), at 9-11; Consolidated Reply Comments of Loral, File Nos. 15/16-DSS-MP-91 (March 27, 1992), at 10-14; Consolidated Response of TRW, File Nos. 15/16-DSS-MP-91 (March 27, 1992), at 12-14).

14/ See Consolidated Opposition of AMSC to Petitions to Deny, File Nos. 15/16-DSS-MP-91 (January 31, 1992), Technical Appendix, at 8-22.

Technical Appendix contains a further demonstration of this fact.

III. The Assignment of the 1616.5-1626.5 MHz Band to AMSC Would Be the Best Use of the Proposed New MSS Spectrum

For the reasons explained above, the Commission should seriously and realistically examine the issue of whether the 1610-1626.5/2483.5-2500 MHz bands will support multiple non-geostationary MSS systems. AMSC believes that these systems are better accommodated in other frequencies, and that the public interest is served best by assigning the 1616.5-1626.5 MHz band to AMSC for integration into its MSS system.

A. AMSC's Operation in the 1616.5-1626.5 MHz Band Does Not Present the Same Interference Concerns as Do the Proposed Non-Geostationary MSS Systems

While each of the proposed non-geostationary MSS systems would cause severe harmful interference to RAS, aeronautical radionavigation, and fixed services in the 1610-1626.5 MHz band, AMSC's requested use of the 1616.5-1626.5 MHz portion of that band presents far fewer problems. One major reason is that unlike the proposed non-geostationary systems, which propose sooner or later to operate globally (and which must operate globally to defray their tremendous cost), AMSC's operation will be confined to North America. Since AMSC's satellites will not beam signals over countries with substantial interests in

protecting Glonass and fixed operations within their borders, it will be far easier for AMSC to coordinate the use of frequencies in the 1616.5-1626.5 MHz band. Moreover, because AMSC does not propose to operate in or near the 1610-1613.8 MHz band, it will cause no interference to RAS.

Unlike the non-geostationary MSS applicants, AMSC does not require access to all of the spectrum in the 1610-1626.5 MHz band. Because AMSC will have an existing MSS system in place on nearby frequencies, it can add frequencies in this band incrementally to its system at nominal cost. AMSC needs the full 10 MHz of uplink spectrum it requests and believes much of this spectrum can be coordinated successfully. AMSC can add whatever frequencies in the 1616.5-1626.5 MHz band are available to increase the capacity of the U.S. MSS system. This is not the case with the proposed non-geostationary systems, which require a larger portion of spectrum than likely can be made available.

B. AMSC Can Obtain Access to Downlink Spectrum to Match the 1616.5-1626.5 MHz Band

AMSC is confident that it can obtain access to sufficient downlink spectrum to match its use of frequencies in the 1610-1626.5 MHz uplink band. Initially, the Commission should revisit its determination not to propose the allocation of the 1515-1525 MHz band domestically as a matching MSS downlink. The Commission based this tentative determination on its view that MSS use of this band would

result in interference to aeronautical telemetry users, and on its interpretation of a footnote (RR 722B) adopted at WARC-92.[15/]

AMSC, however, has submitted several analyses showing that MSS systems can share this band with aeronautical telemetry users.[16/] Despite the international footnote limiting MSS use of the 1492-1525 MHz band, AMSC believes that the Commission retains the flexibility to assign these frequencies to a domestic MSS system. RR 722B was added unilaterally by the U.S. delegation. The U.S. could not have intended to impose on itself an unconditional bar on use of the 1515-1525 MHz band by a U.S. MSS system. The Commission should assign the 1515-1525 MHz band to AMSC and condition its use on AMSC's formulating a solution for sharing with aeronautical telemetry.

In the alternative, AMSC believes it can gain access to downlink spectrum in other bands. For example, AMSC has proposed that the 2125-2150 MHz and 2160-2200 MHz bands, which are allocated internationally to MSS in the space-to-Earth direction, be allocated domestically to MSS.[17/] The

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15/ Notice, n.15. RR 722B states: "Alternative allocation: in the United States of America, the band 1452-1525 MHz is allocated to the fixed and mobile services on a primary basis. (See also No. 723.)."

16/ See Consolidated Opposition of AMSC to Petition to Deny, File Nos. 15/16-DSS-MP-91 (January 31, 1992), Annex to Technical Appendix; Further Reply of AMSC, RM-7400 (October 18, 1990), Technical Appendix.

17/ Comments of AMSC, Gen. Docket No. 90-314, ET Docket No. 92-100 (November 9, 1992).

2160-2170 MHz band is particularly attractive because it is allocated to MSS on a primary basis in Region 2.

IV. Should the Commission Decide on a Policy of Licensing Multiple MSS Systems in the 1610 1626.5/2483.5-2500 MHz Bands, AMSC Will Cooperate in Facilitating Sharing Between the Proposed Systems

Should the Commission determine that a policy of licensing multiple CDMA MSS systems in the 1610-1626.5/2483.5-2500 MHz bands would serve the public interest, AMSC intends to work with other interested parties toward exploring ways by which all of the proposed MSS systems can share the available spectrum in the new bands. AMSC is willing to modify its proposal for AMSC's second and third satellites accordingly, including sharing of the 2483.5-2500 MHz downlink band through the use of CDMA.

A. Geostationary Systems Present No Special Problems With Respect to Sharing Between CDMA MSS Systems

Contrary to the suggestions in the Notice, geostationary MSS systems are as capable of sharing with non-geostationary MSS systems using CDMA as are other non-geostationary systems. Indeed, each of the non-geostationary applicants originally designed its system to be capable of sharing with Geostar Positioning Corp.'s geostationary CDMA RDSS system. The attached Technical Appendix discusses this issue in greater detail.